

REMARKS

Applicant wish to thank the Examiner for his consideration of Applicant's previous submitted arguments, and Examiner's withdrawal of his previous claim rejections. Claims 1-24 are pending. Claims 1-24 are rejected. Independent claims 1, 7, 13, and 19 have been amended. Claims 1-24 remain pending examination and allowance.

35 U.S.C. 103(a)

Claims 1-4, 7-10, 13-16, and 19-22 stand rejected under 35 U.S.C. 103(a) as being obvious over Inamori in view of Khan. Claims 5-6, 11-12, 17-18, and 23-24 stand rejected under 35 U.S.C. 103(a) as obvious over Inamori in view of Khan as applied to claims 1, 7, 13, and 19, and further in view of Haartsen.

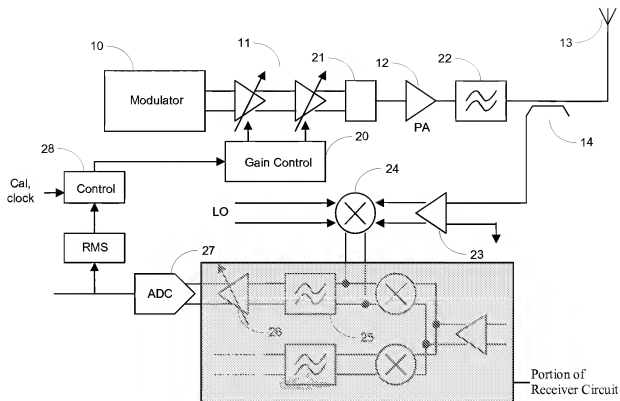
The invention of Applicant is directed generally to systems and methods for accurate control of radio transmitter power. Embodiments of Applicant's invention utilize the receiver base-band circuit of a half-duplex transceiver while the transceiver is transmitting, the receiver circuit normally being idle while the transceiver is transmitting, to process a directional coupler output off of the antenna feed while the antenna is transmitting and to generate a transmission power signal. Use of the receiver circuit for power signal processing during a period when the circuit would normally be idle provides accurate power level control at lower cost. Inamori is directed to a transmit power control system that includes a feedback loop for use in a mobile phone terminal. However, Inamori does not disclose nor suggest that any of the relevant processing take place in the receiver portion of the mobile phone transceiver circuit. Similarly, neither Khan, which is cited for its disclosure of certain circuit components in a feedback loop, nor Haartsen, which is cited for its disclosure of WLAN and TDD technology, disclose or suggest either separately or in any combination with Inamori the use of a receiver base-band circuit of a half-duplex transceiver while the transceiver is transmitting to process a directional coupler output off of the antenna feed while the antenna is transmitting, and to generate a transmission power signal.

Independent claims 1, 7, 13, and 19 have been amended to more clearly point out that a receiver baseband circuit of a half-duplex radio transceiver operates to process received radio signals when the transceiver is receiving, and the receiver baseband circuit operates to process a

downconverter output derived from a directional coupler to produce a power signal representative of the transmitted signal when the transceiver is transmitting. No new matter has been added by these amendments. Amended independent claim 1, and similarly amended independent claims 7, 13, and 19, require:

a receiver baseband circuit of a half-duplex radio transceiver that alternately transmits and receives radio signals, the receiver baseband circuit operating when the half-duplex radio transceiver is receiving to process received radio signals and when the half-duplex radio transceiver is transmitting to process the downconverter output to produce a power signal representative of the transmitted signal;

Use of the receiver circuit of the transceiver is more clearly explained with respect to annotated Fig. 2 of the application, as shown below. In the embodiment illustrated in annotated Fig. 2, the highlighted portion of the circuit represents a portion of a receiver baseband circuit of a half-duplex radio transceiver. The highlighted portion includes a receiver input amplifier, shown on the right, that is connected to two of the receiver's baseband paths, which, for example, could be the I and Q signals of a quadrature amplitude modulation scheme. For ease of explanation, the receiver's baseband paths are referred to herein as the upper and lower paths. The upper receiver baseband path is further connected to the output of power detect downconverter 24, and to control loop analog-to-digital converter 27. When the transceiver is transmitting, a portion of the upper path, including baseband filter 25 and baseband VGA 26, is used to process the power detect signal from directional coupler 14 and produce a digital power detect signal from ADC 27 that is passed to control block 28. When the transceiver is receiving, the upper path is utilized to process the received signal in the manner of a receiver baseband circuit of a half-duplex radio transceiver. See page 5, lines 14-19; page 6, lines 15-21.



Annotated Figure 2 of Appl. 10/633,713

In contrast, Inamori discloses a transmit power control system for use in a mobile phone terminal wherein none of the relevant processing takes place in the receiver portion of the mobile phone transceiver circuit. With respect to Fig. 1 of Inamori as shown below, the extent of the disclosed use of receiver section 220 is to receive a signal transmitted by a base station, and to pass a received signal strength signal. Col. 9, lines 63-64; col. 10, lines 35-37. No processing within receiver section 220 is disclosed or suggested that produces a power signal representative of the transmitted signal as required by all independent claims of Applicant's invention.

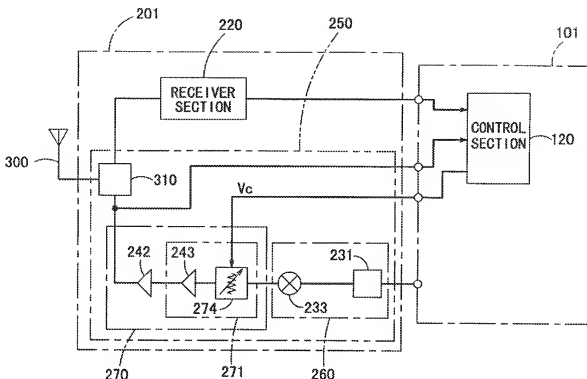


Figure 1 of U.S. Pat. No. 6,337,974 to Inamori

Regarding Khan, it also does not disclose or suggest processing within a receiver section of a half-duplex transceiver while the transceiver is transmitting that produces a power signal representative of the transmitted signal, as required by all independent claims of Applicant's invention. With respect to Fig. 1 of Khan as shown below, a feedback loop is shown as a portion of analog feedback system 39. However, the feedback loop is not part of a receiver circuit. In fact, no receiver circuit is disclosed nor suggested by Khan. The feedback loop as disclosed by Khan is used only in an offline "training" mode to populate lookup table 36. In the training mode, analog feedback system 39 is enabled, and the system is driven through a series of discrete input levels, via the complex baseband digital input signal, over the dynamic range of RF power amplifier 17. The actual transmit power levels are compared with desired power levels at each discrete input level, and a gain multiplier value is calculated and stored in lookup table 36. Col. 3, lines 50-62. After completion of the offline training mode cycles, analog feedback system 39

is disabled, and the disclosed linearization system/radio circuit 101 switches to “normal” operation mode. Col. 4, lines 7-12.

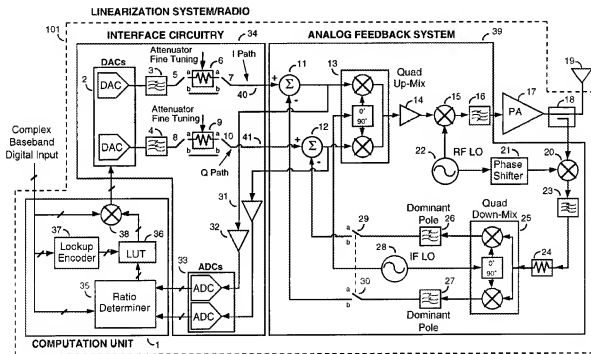


Fig. 1 of U.S. Pat. No. 5,959,499 to Khan

Because neither Inamori nor Khan separately or in combination disclose all elements of Applicant's invention, Applicant's believe their invention is not obvious over the combination of Inamori and Khan. Applicant's believe that amended independent claims 1, 7, 13, and 19 are in condition for allowance. The rejection of claims 3-6, 8-12, 14-18, and 20-24, which depend from independent claims 1, 7, 13, and 19, respectively, are moot. Applicant believes that claims 3-6, 8-12, 14-18, and 20-24 are now in condition for allowance at least for the reasons that claims 1, 7, 13, and 19 are allowable.

Conclusion

It is submitted that all the pending claims are now in a condition for allowance. Reconsideration of the application and issuance of a notice of allowance are respectfully requested. It is believed that no extension of time is required for this matter, but Applicant hereby petitions for and requests that any extension or other fee required for timely consideration

of this application be charged to Deposit Account No. 19-4972. The Examiner is requested to telephone the undersigned if any matters remain outstanding so that they may be resolved expeditiously.

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